

The following Listing of Claims will replace all prior versions, and listings, of claims in the application.

LISTING OF CLAIMS:

1. (Original) A surface roughening method, comprising:
moving a cutting tool along a longitudinal axis of an article, wherein the cutting tool comprises a radial cutting head, and wherein the radial cutting head comprises a cutting blade with a leading edge and a trailing edge;
rotating the cutting tool about the longitudinal axis such that the leading edge of the cutting blade forms a first pattern of peaks and valleys on a surface of the article, wherein the valleys have first and second walls, and wherein the first and second walls further comprise concave regions; and
applying stress to the peaks in the first pattern with the trailing edge of the cutting blade to create fracture surfaces and form a second pattern, wherein the second pattern comprises lands at the fracture surfaces separated by grooves, wherein the grooves in the second pattern correspond to the valleys in the first pattern.
2. (Original) The method of claim 1, wherein
a first line drawn along a first wall of the grooves in the second pattern, and a second line drawn along a second wall of the grooves in the second pattern form an acute angle, and wherein a bisector of the acute angle lies above a line drawn normal to the surface of the article.
3. (Original) The method of claim 1, wherein
an entire cross section of each peak along the longitudinal axis of the article is fractured by applying the stress to each peak in a non-axial direction.
4. (Original) The method of claim 1, wherein
each of the grooves in the second pattern is asymmetrical.

5. (Currently Amended) ~~The~~ A surface roughening method of claim 1,
~~wherein comprising:~~

moving a cutting tool along a longitudinal axis of an article, the cutting tool
comprising a radial cutting head, and the radial cutting head comprising a cutting blade with a
leading edge and a trailing edge;

rotating the cutting tool about the longitudinal axis such that the leading edge of the
cutting blade forms a first pattern of peaks and valleys on a surface of the article, the valleys
having first and second walls, the first wall comprising a first concave region and the second
wall comprising a second concave region; and

applying stress to the peaks in the first pattern with the trailing edge of the cutting
blade to create fracture surfaces and form a second pattern, the second pattern comprising
lands at the fracture surfaces separated by grooves, the grooves in the second pattern
corresponding to the valleys in the first pattern,

~~the leading edge of the cutting blade further comprises~~ comprising a second cutting
edge and a third cutting edge, ~~wherein the second cutting edge forms~~ forming the second
concave region ~~in the second wall of the valleys in the first pattern, and wherein the third~~
cutting edge ~~forms~~ forming the first concave region ~~the first wall of the valleys in the first~~
pattern, the first and second concave regions corresponding to notches in the walls of the
grooves in the second pattern.

6. (Original) The method of claim 1, wherein
the trailing edge of the cutting head further roughens each of the fracture surfaces to
form roughened lands in the second pattern.

7. (Original) The method of claim 1, wherein
the article defines a cylindrical body.

8. (Original) The method of claim 7, wherein
the cylindrical body comprises an interior surface of the article.

9. (Original) The method of claim 1, wherein

the first pattern comprises a substantially helical pattern of peaks and valleys, and wherein the second pattern comprises a substantially helical pattern of lands and grooves.

10. (Original) The method of claim 1, wherein the article comprises a nonferrous metal.
11. (Original) The method of claim 1, further comprising applying a coating overlaying the first and second patterns on the surface of the article.
12. (Original) The method of claim 11, wherein applying the coating comprises at least one of chemical vapor deposition, plasma deposition, thermal spray coating, or fluid spray coating.
13. (Original) The method of claim 11, wherein the coating comprises an abrasion resistant material.
14. (Original) The method of claim 11, wherein the coating comprises at least one of a ceramic material or a ferrous metal.
15. (Original) The method of claim 14, wherein the ceramic material comprises one or more of silicon nitride, silicon carbide, aluminum oxide, silicon dioxide, and titanium nitride.
16. (Original) The method of claim 14, wherein the ferrous metal comprises one or more of titanium, tungsten, cobalt, nickel, iron, and aluminum.

Claims 17-49. (Cancelled)